Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of:	)	
	)	
Preventing Interference in Public Safety	)	RM No. 11663
Frequencies By Requiring H Mask	)	
And Mutual Aid for Digital Technologies	)	

To: The Commission

REPLY COMMENTS OF HARRIS CORPORATION

These Reply Comments are submitted on behalf of the Harris Corporation ("Harris") before the Federal Communications Commission ("Commission") in response to the Petition for Rulemaking filed by Harris.[1] Harris appreciates the Comments filed by each of the interested parties, and urges the Commission to separate speculative and inaccurate assertions from the undeniable proof that not requiring mutual aid and digital technologies to operate in public safety frequencies under H Mask certification will put first responders at risk.

I. The Commission Must Secure Interoperability First Responder Communications.

In essence, Harris has asked the Commission to ensure interoperability of public safety communications by clarifying that, in the multi-technology environment of Part 90 spectrum, such phrases include the least common denominator technology to assure equipment can actually communicate on the designated interoperability channels. Conversely, the New Jersey Transit Corporation ("NJ Transit") stated that the current rules call for the unnecessary inclusion of first responder-ready equipment – via mutual aid – even for entities that are not public safety first

[1] *In re* In the Matter of Preventing Interference in Public Safety Frequencies By Requiring H Mask and Mutual Aid for Digital Technologies, *Petition for* Rulemaking, RM No. 11663 (filed Apr. 30, 2012) ("*Harris Petition*").

responders.[2] In effect, Harris has asked the FCC to define that the phrases "…capability to be programmed for operation…" in 90.203(i) and "…capable of operating…" in 90.203(j)(1) mean more than simply the ability to tune to a certain frequency, but rather to maximize the potential of mutual aid functionality.

Harris submits that, with its proposal, equipment manufacturers, such as PowerTrunk, and licensees, such as NJ Transit, could request appropriate waivers from such requirements, if they can establish that such a waiver would in fact be "in the public interest." Harris strongly believes that to simply do away with the required first responder technology, as NJ Transit proposes, is not conducive to increased public safety interoperability and therefore not in the public interest.

One requirement that has caused disagreement is the inclusion of equipment capable of generating analog FM signals. PowerTrunk asserts its D-LMR equipment is capable.[3] Harris has found that, though their certification grants (for both 800MHz and UHF frequencies) for base stations do show an analog emission designator (11K0F3E and 16K0F3E), none of their subscriber units include that analog emission designator. Further, despite the assurance of their D-LMR equipment's "capability," of analog FM operation, it does not currently generate analog FM signals, and standard TETRA radios do not have the TIA-603 analog FM mode included in them.[4]

II. The H Mask is an Essential Emissions Level to Protect Public Safety Communications from Interference.

In addition to criticizing the usefulness of the Commission's mutual aid requirements, NJ Transit alleges there is no reasonable rationale to impose the H Mask as a restriction on "digital

[2] *See* New Jersey Transit Corporation Comments (filed Jul. 2, 2012) ("NJ Transit Comments") at 2.
[3] *See* PowerTrunk Comments, filed June 28, 2012 ("PowerTrunk Comments") at 5.
[4] *Id.*

technologies that are spectrally efficient, cost-effective, and that deliver a robust feature set" if they comply with some Commission certification rules.[5] NJ Transit goes on to call for the elimination of these "obsolete" emission masks.[6] Harris disagrees; until the Commission proposes appropriate ACP numbers for application in each of the Part 90 spectrum bands that do not currently have them, the masks specified in 90.210 are necessary and reasonable. Furthermore, the argument to apply the 700 MHz ACP numbers in all of the Part 90 Spectrum is technically unjustifiable[7]. The channel structure and associated channel bandwidth limitations of 700 MHz NB spectrum is different than the channel structure and associate channel bandwidth limitations of VHF, UHF, 800 MHz and 900 MHz, particularly 800 NPSPAC Part 90 spectrum. The 700 MHz ACP are simply not applicable across the board as implied. It is seemingly for this reason that 11-69 has not been closed; unique ACP numbers for application in each of the Part 90 spectrum bands have not been vetted through the rulemaking process. In fact, the Commission has not even proposed ACP numbers that are appropriate for each band as part of the 11-69 rulemaking process.[8] Thus, it appears it will be quite some time before anything is finalized in 11-69, and until such a time as 11-69 is finalized, the masks in 90.210 are not obsolete. The question on the table in the Harris proposed rulemaking is whether or not the audio low-pass filter classification is appropriate in the case of digitally modulated equipment (we assert such classification is not appropriate for digital equipment). This question needs to be addressed now and cannot wait while 11-69 wends its way through what could be a very long rulemaking process.

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[5] *See* NJ Transit Comments at 2.
[6] *Id.* at 1.
[7] *Id.* at 2.
[8] Amendment of Part 90 of the Commission's Rules to Permit Terrestrial Trunked Radio (TETRA) Technology and Request by the TETRA Association for Waiver of Section 90.209, 90.210, and 2.1043 of the Commission's Rules, *Notice of Proposed Rule Making and Order*, WT Docket No. 11-69, ET Docket No. 09-234, 26 FCC Rcd 6503 (2011) ("*Notice"* or "*Waiver Order"*).

III. TETRA Derivative Systems Create the Possibility for Harmful Interference.

Both Nielson Communications ("Nielson") and NJ Transit have asserted their TETRA pilot programs did not produce interference, and thus conclude that digital technologies not complying with the H Mask, but rather with the B Mask, cannot possibly cause interference to first responders.[9] A review of FCC databases and relevant documents indicate that Nielson's referenced TETRA system is a three-site pilot program likely operating on Part 22 frequencies in the 450-470 MHz band.[10] Further, in light of the geographic nature of Neilson's Part 22 450-470 MHz holdings, it is reasonable to expect this pilot would not cause interference to any co-channel or adjacent channel systems be they P25 systems or otherwise – simply because no such systems are adjacent to Nielson's operations. Thus, the claim of no interference does not refute a clear showing that any P25 system operating adjacent to a digital system not certified as H Mask compliant will likely suffer significant interference. While we do not currently have specifics of NJ Transit's pilot program, it is fair to say that a lack of interference on a small pilot program is not dispositive in the context of greater utilization of TETRA equipment and should not be treated as such.

IV. Comparisons Between "Reduced Power" TETRA and Other Products Are Inaccurate and Misleading.

PowerTrunk erroneously claims that OpenSky equipment causes the same interference as Harris asserts PowerTrunk's reduced-power TETRA equipment will cause.[11] Harris asserts that their

[9] *See* Nielson Communications, Inc. Comments (filed Jun. 27, 2012) ("Nielson Comments") at 1;*see also* NJ Transit Comments at 2.
[10] *See generally* Christian Reynolds, Nielson Communications, Inc., "Green Bay TETRA Pilot". http://tetraforum.pl/doc/TETRA-Congress-US-2011-Fort-Worth-Texas/Green-Bay-TETRA-Pilot-Christian-Reynolds.pdf; *see also* Nielson Communications Radio Station Authorization, ULS File No. 0004520352. (Granted January 31, 2011).
[11] *See* PowerTrunk Comments at 4.

analysis does not present a fair comparison. PowerTrunk compares emission levels (-46 dBc to -60dBc);[12] these numbers do not properly convey the difference between the two systems. TETRA equipment may support -60dBc in the channel 25 kHz away, but it does not support that level in the channel 12.5 kHz away, as per NPSPAC requirements. TETRA only supports approximately -22 dBc in the adjacent 12.5 kHz, while OpenSky supports -46 dBc. Moreover, their statements ignore the fact that OpenSky equipment meets the H Mask criteria, while PowerTrunk's D-LMR does not.

PowerTrunk's comparison to its reduced-power TETRA system with Harris' OpenSky system is flawed. PowerTrunk asserts that their D-LMR equipment has superior data capacity and speech quality, comparing Kbits/s per 25 kHz channel.[13] This comparison is over-simplified and does not accurately portray performance. Data capacity depends on message size, slot size, protocol and other factors; most transit companies use the equipment for small messages like GPS, for which OpenSky is a very efficient data protocol. Moreover, were Harris to apply the B Mask, rather than the H Mask, to its OpenSky system, both increased range and increased data performance would be possible, and would likely result in superior overall performance to PowerTrunk's technology with fewer sites and lower cost. However, redesigning existing H Mask compliant digital equipment to B Mask compliance would cause the same level of adjacent channel interference and Harris believes that is not in the best interest of first responders. Various parties have asserted that the Harris Petition is anti-competitive;[14] on the contrary, Harris

[12] *Id.*
[13] *Id.* (Compares PowerTrunk's D-LMR at 36 Kbit/s per 25 KHz channel to Harris' OpenSky at 19.2 Kbit/s per 25 KHz channel)
[14] *See* Alcatel-Lucent Comments, filed July 2, 2012 ("Alcatel-Lucent Comments) at 1; *see also* PowerTrunk Comments at 2.

believes that allowing the deployment of equipment that does not comply with the industry's commonly used practice "tilts the playing field" in a demonstrably anti-competitive manner.

V. The Commission's May 21 Decision Regarding NJ Transit Is Not Dispositive For This Proposed Rulemaking.

Some parties assert that an approval of Harris' proposed rulemaking would create uncertainty in the market and would not be in the public interest because of the Commission's May 21 decision regarding NJ Transit.[15] This is incorrect. The Commission's May 21 decision addresses the use of vacated Sprint/ Nextel frequencies in the "old" NPSPAC band rather than rebanding to use the "new" NPSPAC band.[16] This decision does not address the utilization of PowerTrunk's non-H Mask certified equipment in the NPSPAC band. As such, this previous decision is not determinative in the context of Harris' proposed rulemaking.

In its decision, the Commission advised NJ Transit to keep NPSPAC channels "available to public safety entities that have 'cross-agency interoperability requirements during emergency situations.'"[17] In order for NJ Transit to do this, they were given permission to use Business and Industrial spectrum in the 800 MHz interleaved band. In granting NJ Transit this waiver, the Commission recognized that NJ Transit is in a rare position of operating in "a self-contained environment in which interoperability with other licensees is unneeded."[18] Their absence from the NPSPAC band frees up space for public safety interoperable operations for which those frequencies are reserved, and prevents an interference-causing technology from operating in

[15] *See* Alcatel-Lucent Comments at 2.
[16] *See* Request for Waiver – Nextel Related Frequencies filed by New Jersey Transit Corporation (May 17, 2012) ("NJ Transit Waiver) at 1. The Commission granted them permission to replace their "ten NPSPAC frequencies with the Sprint Nextel Corporation-vacated and to-be-vacated frequencies … rather than with the originally assigned "new" NPSPAC frequencies (806-809/851-854 MHz)."
[17] *See* NJ Transit Waiver at 1.
[18] *Id.* at 2.

NPSPAC channels – action that the Harris petition would formalize. NJ Transit, Alcatel Lucent and PowerTrunk are incorrect in treating the Commission's May 21 decision as a blessing of their utilization of TETRA equipment on public safety frequencies. The Commission stated no such thing, and in fact, prevented the operation of non-H Mask compliant technology in NPSPAC channels.

VI. Conclusion

For the foregoing reasons, Harris requests the Commission immediately initiate an appropriate rulemaking and swiftly adopt the Harris Petition.

Respectfully Submitted,

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